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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/512,815 02/25/00 DAL PAN

A Q-57966

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EXAMINER

KERNS, K

ART UNIT

PAPER NUMBER

1725

3

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. 09/512,815	Applicant(s) DAL PAN, ALFREDO	
	Examiner Kevin P. Kerns	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 7 and 9 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- |   |  |
|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 20) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The disclosure is objected to because of the following informalities: on page 1, line 3, "Lost-foam" should be changed to "The lost-foam". There are words with brackets "<< >>" around them on pages 1, 2, and 14, and all these brackets should be deleted. On page 3, 5<sup>th</sup> line from the bottom, reference to either Figure 2 or 3 should be given in this sentence, as "sand F" is not labelled anywhere in Figure 1. On page 4, line 3, as well as page 7, 5<sup>th</sup> line from the bottom, "further on" should be changed to "later". On page 4, line 10, it is not clear whether "dotted line" should instead be "dashed line". On page 5, line 15, "31b and 31c" should be added after "organs". On page 12, line 11, "114a, 114b" should be changed to "114"; and, correspondingly, on page 12, line 12, "114a, 114b" should be added after "formations". On page 15, line 4, "here" should be changed to "hereby". Corrections and/or clarifications are required for these and other errors that occur throughout the specification.

***Claim Objections***

3. Claims 7 and 9 are objected to because of the following informalities: in claims 7 and 9, line 3 of each claim, "position" should be changed to "positions". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "can selectively be" in claim 1 is an unclear term which renders the claim indefinite. The term "can selectively be" does not positively and directly set forth the claim.

Claim 3 recites the limitation "the following means". There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 4, the phrase "bracket-like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

The term "solidary" in claims 6 and 11 is an unclear term which renders the claims indefinite. It is unclear what is meant by the term "solidary", and this term should (probably) be changed to "complementary" or "dependent".

The term "at least partly" in claim 8 is an unclear term which renders the claim indefinite. It is unclear how the first and second gripping means would "at least partly" consist of a clamp structure. The clamp structure (in its entirety) would either be present or absent from the respective gripping means.

The term "can be selectively" in claim 10 is an unclear term which renders the claim indefinite. The term "can be selectively" does not positively and directly set forth the claim.

Claim 11 recites the limitation "said mobile equipment" in lines 3 and 5 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 13, the phrase "pin-type" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claims 15 and 16 recite the limitation "the particular type of model(s)". There is insufficient antecedent basis for this limitation in the claims.

The term "can be" in claim 16 (lines 2 and 6) is an unclear term which renders the claim indefinite. The term "can be" does not positively and directly set forth the claim.

Claim 16 recites the limitation "the processing intervention". There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Rikker (US 4,947,923).

Rikker discloses a method and apparatus for evaporative pattern (lost-foam) casting in which the apparatus is comprised of multiple operation stations connected by conveyors, sand feeding means (hopper) with associated loading means, supporting means (frame) with associated vibration means, vertically-adjusting (bracket-like) mobile equipment elements, as well as handling, transfer, and positioning means (insertion and removal device) that sustain (clamp) the models (patterns) during feeding of sand (abstract; column 6, lines 19-29, 42-46, and 58-60; column 7, lines 14-52; column 9, lines 30-44 and 66-68; column 10, lines 1-5, 14-28, and 34-42; column 12, lines 22-37; column 14, lines 34-68; column 15, line 1; column 16, lines 44-47; column 25, lines 54-66; column 26, lines 8-31; and Figures 1-3, 11-13, 16-18, 21, and 22).

8. Claims 1-5, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Travillian (US 4,768,567).

Travillian teaches a multiple-station sand fill apparatus for lost foam casting in which an expendable pattern is embedded in sand to form a lost foam casting mold (abstract; column 1, lines 5-14; column 3, lines 6-15; and Figures 1 and 3). The

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apparatus contains means for vibrating the flask during sand fill from a supply hopper to promote dense packing and to reduce pattern distortion (column 2, lines 15-26 and 50-56; column 3, lines 37-54; column 4, lines 51-52; column 5, lines 39-47; and Figures 1 and 3). The pattern is held by a fixture with associated (bracket) clamp for gripping (mobilizing and positioning means) in a desired position within (or initiating removal from) the flask (column 2, lines 36-44; column 3, lines 64-68; column 4, lines 1-15 and 34-44; column 5, lines 7-9; and Figures 1 and 3).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1, 5, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shebuski (US 4,565,227) in view of Yoshida (GB 2,209,977).

Shebuski teaches a process and apparatus for surrounding a foam pattern with sand, in which the apparatus contains a mold pattern containing an inner cavity within a

mold flask, a batch hopper (sand-feeding means), and a support arm that clamps the sprue of the mold pattern (disengagable handling and vertical positioning means) to hold the mold pattern while pouring of sand is occurring (abstract; column 1, lines 48-58; column 3, lines 5-8 and 46-63; column 4, lines 4-17; and Figures 1-4). Shebuski does not specifically teach vibration means in the apparatus.

However, Yoshida discloses a sand supply system for use with a mold containing a polystyrene foam pattern in which a vibration table provides vibration to the molding sand for the purpose of reducing the bending stresses on the pattern due to the weight and flow of the sinking molding sand (abstract; page 1, lines 9-28; page 2, line 1, 10-17, and last 5 lines; page 3, lines 1-4 and 20-29; page 4, lines 1-8; and Figures 3 and 4).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the apparatus for surrounding a foam pattern with sand, as disclosed by Shebuski, with the vibration means taught by Yoshida, in order to reduce the bending stresses on the pattern due to the weight and flow of the sinking molding sand (Yoshida; abstract; page 1, lines 9-28; page 2, line 1, 10-17, and last 5 lines; page 3, lines 1-4 and 20-29; page 4, lines 1-8; and Figures 3 and 4).

12. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Rikker (US 4,947,923) or Travillian (US 4,768,567) in view of VanRens et al. (US 4,593,739).

Both Rikker and Travillian individually disclose all the elements of claim 1 above. Although both Rikker and Travillian teach a clamping element for the mold pattern,



neither Rikker nor Travillian discloses the use of a second clamping (gripping) element for the container(s).

However, VanRens et al. disclose an apparatus for vibrational packing of sand around a (lost foam) mold pattern, in which both the mold pattern and the (vibrated) mold flask (container) are gripped, or clamped (abstract; column 2, lines 3-10, 14-21, and 49-52; column 3, lines 24-48; column 4, lines 6-24, 36-48, and 52-58; and Figure). These features are advantageously used to allow only horizontal vibrational forces via the clamp to be transmitted to the mold flask extending approximately through the combined center of gravity at a controlled velocity while sand is being deposited (column 2, lines 3-21; and column 3, lines 33-43).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the apparatus of either Rikker or Travillian with the additional feature of clamping means onto the flask, as disclosed by VanRens et al., in order to allow only horizontal vibrational forces via the clamp to be transmitted to the mold flask extending approximately through the combined center of gravity at a controlled velocity while sand is being deposited (VanRens et al.; column 2, lines 3-21; and column 3, lines 33-43).

13. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Rikker (US 4,947,923) or Travillian (US 4,768,567) in view of McMellon (US 4,736,787).

Both Rikker and Travillian individually disclose all the elements of claims 1, 10, and 11 above. Neither Rikker nor Travillian teaches centering elements for accurate

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positioning of elements in the apparatus, as well as a system that would recognize the status of the components of the system via identification signals.

However, McMellon discloses a lost foam handling system in which a plurality of stations comprised of gondolas on rails individually contains alignment means to position the flask-carrying gondolas relative to the compaction and dump stations, the positioning (alignment) device of which contains clevis-like (fork structure) and tongue-like members with a pivotally connected interlocking pin therebetween (abstract; column 3, lines 10-51; column 5, lines 5-11 and 17-29; and Figures 1-5). A controller that provides position and status signals to operate the conveyor and associated components include a programmable microprocessor to actuate the sequence at each of the plurality of stations (abstract; column 4, lines 48-66; and Figures 1 and 2). These features are advantageous for providing an automated conveyance system for lost foam casting with proper alignment and operation speeds at various stations to allow the system to be tailored to meet the specific needs and resources desired where the controller is installed (column 1, lines 6-15; column 2, lines 54-57; column 4, lines 61-66; and column 5, lines 5-11).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the apparatus of either Rikker or Travillian with the lost foam system containing positioning (alignment) means, as well as a programmable microprocessor, both of which are disclosed by McMellon, in order to provide an automated conveyance system for lost foam casting with proper positioning alignment and operation speeds at various stations to allow the system to be tailored to

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meet the specific needs and resources desired where the controller is installed (McMellon; column 1, lines 6-15; column 2, lines 54-57; column 4, lines 61-66; and column 5, lines 5-11).

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Olsen, Musschoot, Bailey et al., Bond et al., Sauerman et al., Bailey et al., and JP 10-328783 references are also cited to show the state of the art. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



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June 3, 2001